

CLAIMS

1. A surface-emitting laser light source using a two-dimensional photonic crystal, which includes:

5 a two-dimensional photonic crystal having a plate-shaped body material in which a large number of modified refractive index areas whose refractive index differs from that of the body material are periodically arranged; and

an active layer provided on one side of the two-dimensional photonic crystal, and which is characterized in that:

10 a plane shape of each modified refractive index area on a side opposite from the active layer is smaller than that on another side facing the active layer; and

 a center of gravity of each modified refractive index area on the side facing the active layer is displaced from that on the side opposite from the active layer.

15 2. The surface-emitting laser light source using a two-dimensional photonic crystal according to claim 1, which is characterized in that a cross-sectional shape of the modified refractive index area on a plane perpendicular to the body material has a step-like profile.

20 3. The surface-emitting laser light source using a two-dimensional photonic crystal according to claim 1 or 2, which is characterized in that the shape of the modified refractive index area on the side facing the active layer is a triangle, and the shape of the modified refractive index area on the side opposite from the active layer is a triangle that is smaller than the aforementioned triangle.

4. The surface-emitting laser light source using a two-dimensional photonic crystal according to claim 1 or 2, which is characterized in that the shape of the modified refractive index area on the side facing the active layer is a circle, and the shape of the modified refractive index area on the side opposite from the active layer is a shape obtained
5 by partially cutting the aforementioned circle.

5. The surface-emitting laser light source using a two-dimensional photonic crystal according to one of claims 1 to 4, which is characterized in that the modified refractive index areas are arranged in a square lattice pattern.

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6. The surface-emitting laser light source using a two-dimensional photonic crystal according to one of claims 1 to 5, which is characterized in that the modified refractive index area consists of holes or a member made of a material whose refractive index differs from that of the body material.